Supporting Information for

Short Communication

Berberine improves central memory formation of $CD8^+$ T cells: Implications for design of natural product-based vaccines

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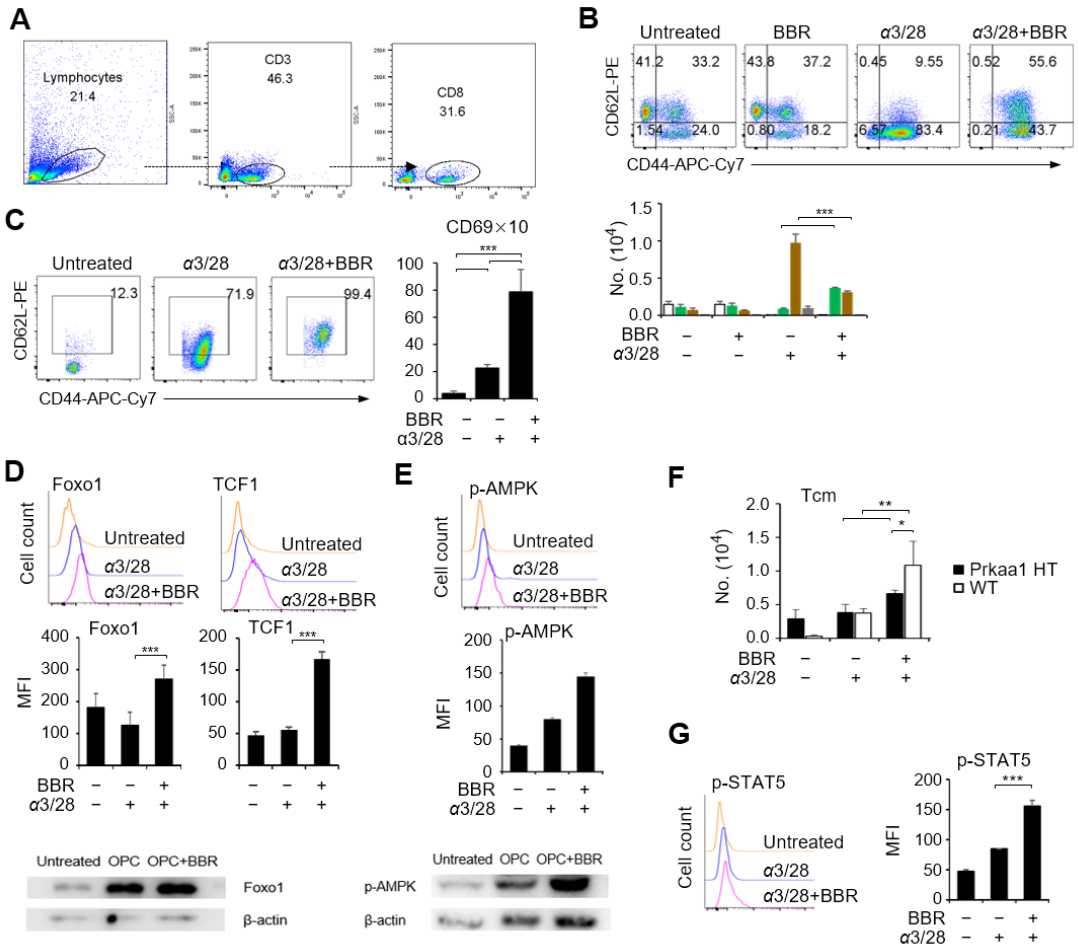

Figure S1 BBR upregulates Foxo1 and TCF1 through AMPK and Stat5 signaling. Splenic lymphocytes isolated from naïve mice were stimulated with *α*3/28 in combination of BBR for 3 days. (A) Gating strategy of flow cytometry. (B) Flow cytometry analysis of $CD62L^{+}CD44^{+}$ Tcm and $CD62L^{-}CD44^{+}$ Tem/Teff $CD8^{+}$ T cells in BBR-pretreated mice. $CD62L^{+}CD44^{-}$ naïve and $CD62L^{-}CD44^{-}$ double negative populations were also included. (C) Percentage of $CD69^{+}$ cells in $CD8^{+}$ T cells. Expression of Foxo1, TCF1 (D), p-AMPK (E), number of $CD62L^{+}CD44^{+}$ Tcm (F), and expression of p-Stat5 (G) in $CD8^{+}$ T cells. Results are representative of two to five independent experiments (n = 3–4 per group). Data are shown as mean ± SD; *P < 0.05, **P < 0.01, ***P < 0.001.

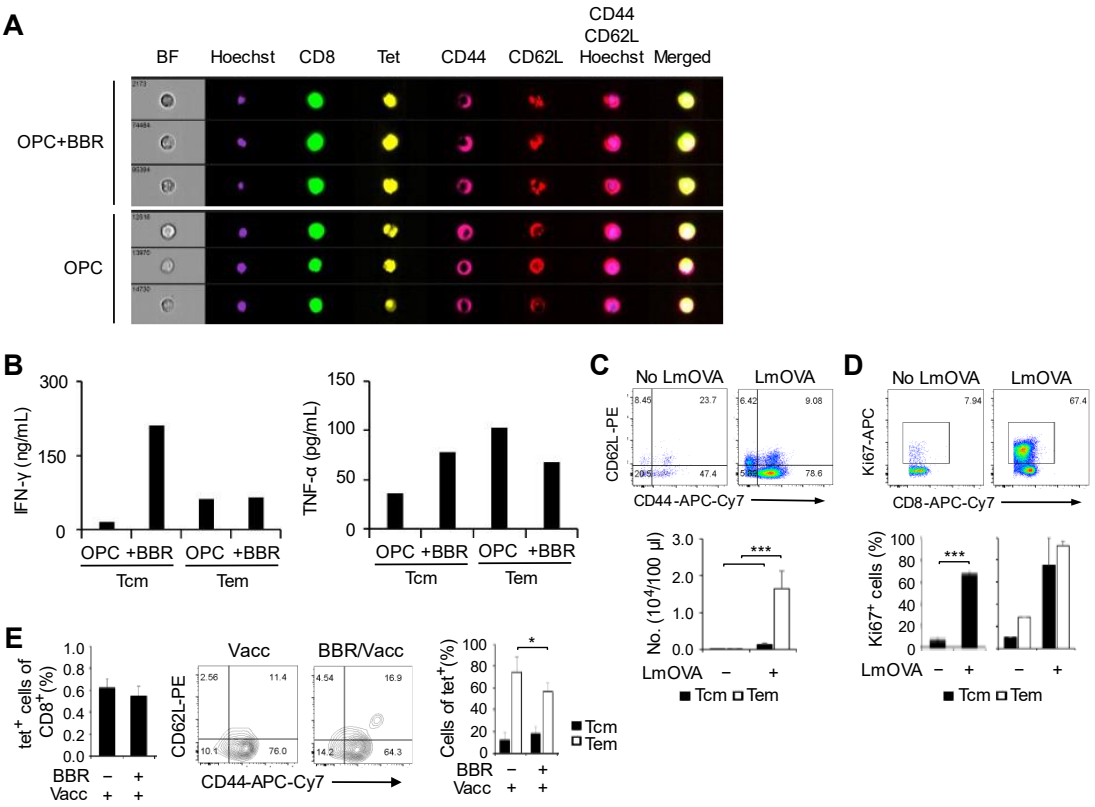

Figure S2 BBR promoted $CD8^+$ Tcm differentiate. Cells were cultured, sorted and immunized as described above. (A) Cell morphology was detected by ImageStream Mark II. (B) Production of intracellular IFN-γ and TNF-α. (C) percentage Ki-67^+CD8^+ T cells (D) in the recipient's blood 7 days after boost. (E) Percentage of antigen-specific cells and Tcm/Tem. Results are representative of two independent experiments (n = 3–5 per group). Data are shown as mean ± SD; *P < 0.05, **P < 0.01, ***P < 0.001